

## CLAIMS

1           1.     A bracket for supporting a first or second computer circuit board relative  
2 to a computer chassis, the first computer circuit board having an arrangement of attachment  
3 sites different than an arrangement of attachment sites of the second computer circuit board,  
4 the bracket comprising:

5                 a bracket body having a first arrangement of bracket fastening sites aligned  
6 with the attachment sites of the first computer circuit board and a second arrangement of  
7 bracket fastening sites aligned with the attachment sites of the second computer circuit board;

8                 at least one circuit board fastener having a bracket coupling portion coupled to  
9 one of the bracket fastening sites and a board coupling portion aligned with and configured  
10 to couple to one of the attachment sites of the first circuit board when the circuit board  
11 fastener is coupled to a bracket fastening site of the first arrangement, or the board coupling  
12 portion being aligned with and configured to couple to an attachment site of the second  
13 circuit board when the circuit board fastener is coupled to a bracket fastening site of the  
14 second arrangement; and

15                 at least one chassis fastener coupled to the bracket body and positioned to  
16 couple to a corresponding fastening site of the computer chassis to support the bracket body  
17 and either the first circuit board or the second circuit board relative to the chassis.

1           2.     The bracket of claim 1 wherein the bracket coupling portion of the  
2 circuit board fastener is unthreaded and configured to be removably attached to the bracket  
3 body without the use of tools, the board coupling portion of the circuit board fastener is  
4 unthreaded and configured to be removably attached to the circuit board without the use of  
5 tools, and the chassis fastener is unthreaded and configured to be attached to the chassis  
6 without the use of tools.

1           3.     The bracket of claim 1 wherein the bracket attachment sites of the  
2 bracket body include first apertures and the attachment sites of the second circuit board

3 include second apertures, further wherein the bracket coupling portion of the circuit board  
4 fastener is unthreaded and includes first flexible prongs configured to be removably inserted  
5 into one of the first apertures of the bracket body without the use of tools and the board  
6 coupling portion of the circuit board fastener includes second flexible prongs configured to  
7 be removably inserted into one of the second apertures of the second circuit board without  
8 the use of tools.

1 4. The bracket of claim 1 wherein the chassis has an elongated slot  
2 extending in a first direction and the bracket body includes a guide member positioned to  
3 extend in a second direction transverse to the first direction into the elongated slot of the  
4 chassis to guide the bracket body into alignment with the chassis.

1 5. The bracket of claim 1 wherein the bracket fastening sites include  
2 apertures sized to receive the bracket coupling portion of the circuit board fastener.

1 6. The bracket of claim 1 wherein at least one of the bracket fastening sites  
2 includes an elongated groove having a lengthwise dimension greater than a corresponding  
3 lengthwise dimension of the bracket connection portion of the board fastener to support the  
4 bracket connection portion in a plurality of positions within the groove.

1 7. The bracket of claim 1, further comprising a bracket handle attached to  
2 the bracket body and having a grip portion configured to be engaged by a user to move the  
3 bracket body into or out of position relative to the chassis.

1 8. The bracket of claim 7 wherein the bracket handle has a protrusion  
2 extending below a bottom surface of the bracket body, the protrusion sized to be removably  
3 received in a corresponding slot of the chassis to secure the bracket body relative to the  
4 chassis.

1           9.     The bracket of claim 1 wherein the bracket body includes at least two  
2 spaced apart longitudinal members joined with at least two spaced apart transverse members  
3 extending between the longitudinal members.

1           10.    The bracket of claim 1 wherein the bracket body is a first bracket body  
2 and the second circuit board has a larger planform area than the first circuit board, further  
3 comprising a second bracket body couplable to a portion of the second circuit board and the  
4 chassis to support the second circuit board relative to the chassis.

1           11.    The bracket of claim 10 wherein the second bracket body includes an  
2 elongated member having at least one bracket fastening site aligned with an attachment site  
3 of the second computer circuit board and at least one chassis fastener positioned to couple to  
4 a fastening site of the computer chassis.

1           12.    An attachment bracket for attaching a computer circuit board to a  
2 computer chassis, comprising:

3               a bracket body having a first portion extending along a first axis and a second  
4 portion integral with the first portion extending along a second axis transverse to the first  
5 axis, the bracket body further having a plurality of bracket fastening sites positioned along  
6 the first and second axes and aligned with a corresponding plurality of attachment sites of the  
7 circuit board;

8               a plurality of circuit board fasteners, each board fastener having a bracket  
9 coupling portion coupled to a corresponding bracket fastening site and a board coupling  
10 portion aligned with and configured to couple to one of the attachment sites of the circuit  
11 board; and

12              at least one chassis fastener coupled to the bracket body and positioned to  
13 couple with a corresponding fastening site of the computer chassis.

1           13. The bracket of claim 12 wherein the chassis fastener, the bracket  
2 coupling portion of the circuit board fastener, and the board coupling portion of the circuit  
3 board fastener are each unthreaded.

1           14. The bracket of claim 12 wherein the bracket fastening site includes an  
2 aperture and the bracket coupling portion of the circuit board fastener includes two flexible  
3 projections configured to extend into the aperture, each projection having a lip surface  
4 engaged with a surface of the bracket body adjacent to the aperture to resist relative motion  
5 between the circuit board fastener and the bracket body when the circuit board fastener is  
6 coupled to the bracket body.

1           15. The bracket of claim 12 wherein the bracket body includes at least two  
2 spaced apart longitudinal members joined with at least two spaced apart transverse members.

1           16. The bracket of claim 15, further comprising support members connected  
2 diagonally between the longitudinal members and the transverse members.

1           17. An assembly for grounding a circuit board at a single location,  
2 comprising:

3           a circuit board having a plurality of attachment sites and at least one circuit  
4 element with a grounding terminal;

5           an input/output connector coupled to the circuit board and electrically coupled  
6 to the grounding terminal of the circuit element;

7           a chassis;

8           an attachment bracket coupled to the attachment sites of the circuit board with  
9 circuit board fasteners and coupled to the chassis with at least one chassis fastener; and

10          an electrically conductive gasket coupled between the connector and the  
11 chassis, the gasket providing the sole electrical path between the grounding terminal of the  
12 circuit element and the chassis.

1           18.    The assembly of claim 17 wherein at least one of the circuit board  
2 fasteners is unthreaded and includes first flexible prongs configured to be removably inserted  
3 into an aperture of the circuit board, and the at least one chassis fastener is unthreaded and  
4 includes an engaging surface spaced apart from the attachment bracket with the chassis  
5 clamped between the attachment bracket and the engaging surface to restrict relative motion  
6 between the attachment bracket and the chassis.

1           19.    The assembly of claim 17 wherein the circuit board includes a connector  
2 plate supporting the connector and the gasket includes a compressible conductive material  
3 positioned between the chassis and the connector plate.

1           20.    A method for coupling a computer circuit board to a computer chassis,  
2 comprising:  
3               coupling the computer circuit board to a single support bracket by attaching the  
4 computer circuit board to a plurality of unthreaded fasteners located at bracket fastening sites  
5 on a first support member of the support bracket and a second support member of the support  
6 bracket transverse to the first support member; and  
7               coupling the support bracket to the computer chassis by attaching the support  
8 bracket to at least one chassis fastening site of the chassis without threaded fasteners.

1           21.    The method of claim 20 wherein coupling the circuit board to the single  
2 support bracket includes inserting flexible prongs of the unthreaded fasteners into  
3 corresponding apertures of the circuit board and biasing the prongs against the circuit board  
4 to restrict motion of the circuit board relative to the support bracket.

1           22.    The method of claim 20 wherein the support bracket has a first end  
2 proximate to an input/output connector of the circuit board and a second end opposite the  
3 first end, further comprising:  
4               inserting a first unthreaded chassis fastener portion positioned toward the first  
5 end of the support member into a first aperture of the chassis;

6 inserting a second unthreaded chassis fastener portion positioned toward the  
7 second end of the support bracket into a second aperture of the chassis;  
8 sliding the support bracket and the chassis fastener portions relative to the  
9 chassis; and  
10 restricting relative motion between the support bracket and the chassis by  
11 engaging lateral surfaces of the chassis fastener portions with a facing lateral surface of the  
12 chassis.

1 23. The method of claim 22 wherein sliding the support member includes  
2 compressing a conductive gasket between the chassis and a conductive mounting plate  
3 supporting an input/output connector of the circuit board.

1 24. The method of claim 23, further comprising removably attaching the  
2 gasket to the chassis by inserting hooks of the gasket into corresponding apertures of the  
3 chassis.

1 25. The method of claim 20, further comprising guiding the bracket into  
2 alignment with the chassis by inserting a guide member of the bracket into a corresponding  
3 slot of the chassis.

1 26. The method of claim 20, further comprising removing the circuit board  
2 and the bracket from the chassis by grasping a handle attached to the bracket and moving a  
3 portion of the handle out of a receiving slot in the chassis.

1 27. A method for coupling a computer circuit board to a computer chassis,  
2 comprising:

3 coupling the circuit board to a single support bracket by removably inserting  
4 flexible prongs coupled to the support bracket into corresponding apertures of the circuit  
5 board and engaging the prongs with the circuit board to at least restrict relative motion  
6 between the circuit board and the support bracket;

7 sliding guide members of the support bracket in corresponding guide slots of  
8 the chassis until a projection of the support bracket removably enters an opening in the  
9 chassis and engages a surface of the chassis to at least restrict relative motion between the  
10 support bracket and the chassis; and

11 grounding the circuit board by electrically coupling the circuit board to the  
12 chassis.

1 28. The method of claim 27 wherein the support bracket has a first end  
2 proximate to an input/output connector of the circuit board and a second end opposite the  
3 first end, further wherein coupling the support bracket to the computer chassis includes  
4 inserting a first projection toward the first end of the support member into a first aperture of  
5 the chassis, inserting a second projection toward the second end of the support bracket into a  
6 second aperture of the chassis, and engaging upward facing surfaces of the first and second  
7 projections with a downward facing surface of the chassis.

1 29. The method of claim 27 wherein grounding the circuit board includes  
2 clamping a compressible conductive gasket between the circuit board and a connector  
3 mounting plate of the chassis.

4 30. A method for mounting different types of computer circuit boards to a  
5 single type of computer chassis using a single type of mounting bracket, the method  
6 comprising:

7 coupling a plurality of first circuit board fasteners to a first bracket to define a  
8 first fastener arrangement with the first circuit board fasteners aligned with first fastening  
9 sites of a first circuit board having a first arrangement;

10 connecting the first circuit board fasteners to the first fastening sites of the first  
11 circuit board and connecting the first bracket to a first computer chassis;

12 coupling a plurality of second circuit board fasteners to a second bracket  
13 generally identical to the first bracket to define a second fastener arrangement with the  
14 second circuit board fasteners aligned with second fastening sites of a second circuit board

15 having a second arrangement of fastening sites different than the first arrangement of  
16 fastening sites; and

17 connecting the second circuit board fasteners to the second circuit board and  
18 connecting the second bracket to a second computer chassis.

19 31. The method of claim 30 wherein coupling the first circuit board  
20 fasteners to the first circuit board includes inserting flexible prongs coupled to the first  
21 bracket into corresponding apertures of the first circuit board and biasing the prongs against  
22 the first circuit board to restrict motion of the first circuit board relative to the first bracket.

23 32. The method of claim 30 wherein at least one of the first fastening sites  
24 of the first circuit board is aligned with a corresponding one of the second fastening sites of  
25 the second circuit board, further comprising permanently attaching one of the first circuit  
26 board fasteners to the first bracket and permanently attaching one of the second circuit board  
27 fasteners to the second bracket.

28 33. The method of claim 30, further comprising removably connecting at  
29 least one of the first circuit board fasteners to the first bracket without threaded fasteners.